IN THE CLAIMS:

Please add:

--75. An isolated polynucleic acid molecule encoding a protein comprising an amino acid sequence selected from the group consisting of

(a) an amino acid sequence of SEQ ID NO:36,

(b) an amino acid sequence of SEQ ID NO:38,

(c) an amino acid sequence of SEQ ID NO:40, and

(d) an amino acid sequence of SEQ ID NO:42,

wherein said protein is capable of binding to a neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase.

76. An isolated polynucleic acid molecule encoding a protein comprising an amino acid sequence selected from the group consisting of:

(a) an amino acid sequence comprising Cys^{8} through Cys^{421} of SEQ ID NO:36,

(b) an amino acid sequence comprising Cys^{44} through Cys^{389} of SEQ ID NO:38,

(c) an amino acid sequence comprising Cys^{36} through Cys^{417} of SEQ ID NO:40, and

(d) an amino acid sequence comprising Cys^{41} through Cys^{337} of SEQ ID NO:42,

wherein said protein is capable of binding to a neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase.

77. An isolated polynucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of:

a) nucleotides of SEQ ID NO:35 encoding Met^{1} through Leu^{464} of SEQ ID NO:36,

b) nucleotides of SEQ ID NO:37 encoding Met^{1} through Trp^{400} of SEQ ID NO:38,

c) nucleotides of SEQ ID NO: 39 encoding Met^{1} through Leu^{460} of SEQ ID NO:40, or

d) nucleotides of SEQ ID NO: 41 encoding Met^{1} through Trp^{397} of SEQ ID NO:42,

wherein said molecule encodes a protein that is capable of binding to a neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase.

78. A vector comprising a polynucleic acid molecule of claim 75, 76 or 77 operatively linked to one or more operational elements effecting the amplification or expression of said polynucleic acid molecule.

79. A vector comprising a polynucleic acid molecule encoding a protein comprising the amino acid sequence of SEQ ID NOs:36, 38, 40 or 42 operatively linked to one or more operational elements effecting the amplification or expression of said polynucleic acid molecule, wherein said protein is capable of binding to a neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase.

80. A transformed or transfected host cell comprising a vector of claim 78.

81. A transformed or transfected host cell comprising a vector of claim 79.

82. A transformed or transfected host cell comprising a vector of claim 78 wherein said host cell is selected from the group consisting of mammalian cells and bacterial cells.

83. A host cell of claim 82 which is a COS-7 cell or E. coli.

84. A method for the production of a neurotrophic factor receptor protein, said method comprising the steps of:

(a) culturing a host cell, containing a polynucleic acid molecule encoding a protein comprising an amino acid sequence selected from the group consisting of

(i) an amino acid sequence of SEQ ID NO:36,

(ii) an amino acid sequence of SEQ ID NO:38,

(iii) an amino acid sequence of SEQ ID NO:40, and

(iv) an amino acid sequence of SEQ ID NO:42,

under conditions suitable for the expression of said neurotrophic factor receptor protein by said host cell; and

(b) optionally, isolating said neurotrophic factor receptor protein expressed by said host cell, wherein said protein is capable of binding to a neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase.

85. A method of claim 84, wherein said polynucleic acid molecule encodes a neurotrophic factor receptor protein comprising the amino acid sequence of SEQ ID NOs:36 or 38.

86. A method of claim 84, wherein said polynucleic acid molecule encodes a neurotrophic factor receptor protein comprising the amino acid sequence of SEQ ID NOs:40 or 42.

87. A method for the production of a neurotrophic factor receptor protein comprising the steps of:

(a) culturing a host cell transformed or transfected with a polynucleic acid molecule according to claim 77 under conditions suitable for the expression of said neurotrophic factor receptor protein by said host cell; and

(b) optionally, isolating said neurotrophic factor receptor protein expressed by said host cell.--

Please cancel claims 13-14, 17-23, 28-31 and 70-74 without prejudice following the entry of claims 75-87 above.

REMARKS

The present invention provides novel soluble polypeptides, that is polypeptides which lack a cytoplasmic or transmembrane domain (see Abstract, page 141, line12). These neurotrophic factor receptor polypeptides or proteins are described in terms of their chemical structures as well as the ability bind to glial cell line derived neurotrophic factor and/or neurturin